

ABSTRACT OF THE DISCLOSURE

A high-turning and high-transonic blade for use in a blade cascade of an axial-flow compressor, wherein a distribution of flow speed on an extrados at a leading edge of the blade has a supersonic region of a substantially constant flow speed in the rear of a first large value of the flow speed and inside a position corresponding to 15% of a chord length from the leading edge. The supersonic region is established so that a value obtained by the division of a difference between Mach numbers at front and rear ends of the supersonic region by a chord-wise length of the supersonic region is smaller than 1, and the maximum Mach number in the supersonic region is smaller than 1.4. A first large shock wave is positively generated at a position where the flow speed assumes a first maximum value, whereby a second shock wave generated in the supersonic region of the substantially constant flow speed in the rear of such a position can be weakened. Thus, boundary layer separation due to the second shock wave can be suppressed, to thereby remarkably reduce the pressure loss of a following flow on the blade.